



500.43155X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Naoki WATANABE  
Serial No.: 10/669,325  
Filed: September 25, 2003  
For: REMOTE COPY SYSTEM

**RENEWED REQUEST FOR RECONSIDERATION OF PETITION TO MAKE  
SPECIAL UNDER 37 CFR 1.102(d) and MPEP. §708.02, VIII**

**MS Petition**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

July 12, 2005

Sir:

Applicants hereby renews its Petition to make this application **Special** previously submitted on March 7, 2005, in accordance with 37 CFR §1.102(d) and MPEP 708.02, VIII. The March 7, 2005 Petition was denied by a Decision issued on May 16, 2005 in which the Petitions Examiner stated that the March 7, 2005 Petition failed to recite distinct features of the claimed subject matter. The present Request for Reconsideration of Petition incorporates by reference the March 7, 2005 Petition and provides additional details regarding the claims and how the claimed subject matter is patentable over the references. The present invention is a new application filed in the United States Patent and Trademark Office on September 25, 2003 and as such has not received any examination by the Examiner.

07/14/2005 HALI11 00000071 501417 10669325

01 FC:1464 130.00 DA

## **2. Claims**

Applicants hereby represent that all the claims in the present application are directed to a single invention. If upon examination it is determined that all the claims presented are not directed to a single invention, Applicants will make an election without traverse as a prerequisite to the granting of special status in conformity with established telephone restriction.

## **3. Search**

Applicants hereby submit that a pre-examination search has been made by a professional searcher.

The field of search covered:

<u>Class</u>	<u>Subclasses</u>
--------------	-------------------

707	204
711	161, 162
714	6

Additionally, a computer database search was conducted on the USPTO systems EAST and WEST.

## **4. Copy of References**

A listing of all references found by the professional searcher is provided by a Form PTO-1449 and copies of the references and the Form PTO-1449 are submitted as part of an Information Disclosure Statement (IDS) filed on March 7, 2005.

The following is a list of the references deemed most closely related to the subject matter encompassed by the claims:

<u>U.S. Patent Number</u>	<u>Inventors</u>
6,457,109	Milillo et al
6,598,174	Parks et al
6,766,359	Oliveira et al
6,804,690	Dysert et al

  

<u>U.S. Patent Application Publication No.</u>	<u>Inventor(s)</u>
2002/0144070	Watanabe et al
2003/0051111	Nakano, et al
2004/0034808	Day, III et al
2004/0172509	Takeda et al
2004/0193660	Gagne et al

A copy of each of these references (as well as other references uncovered during the search) was submitted on March 7, 2005.

## **5. Detailed Discussion of the References and Distinctions Between the References and the Claims**

Below is a discussion of the references uncovered by the search and cited in the IDS filed on March 7, 2005 that appear to be most closely related to the subject matter encompassed by the claims of the present application, and which discussion particularly points out how Applicants' claimed subject matter is distinguishable over those references. All other references uncovered by the search and cited in the IDS filed on March 7, 2005 are **not** treated in detail herein.

### **a. Distinct Features of Claimed Invention**

It is submitted that the cited references, whether taken individually or in combination with each other, fail to teach or suggest the invention as claimed. In particular, the cited references, at a minimum, fail to teach or suggest in combination

with the other limitations recited in the claims:

a first feature of the present invention as recited in independent claim 1, wherein a first storage unit system is connected to a computer, a second storage unit system is provided and a third storage unit system is connected to the first and second storage unit systems, wherein a first controller of the first storage unit system responds to a write request received from the computer to transmit to the third storage unit a journal including write data received from the computer and address information indicative of a position at which the write data is written;

a second feature of the present invention as recited in independent claim 1, wherein a second controller of the second storage unit system receives first control information issued by the first controller and including a storage position of the journal used when the second storage unit system acquires the journal;

a third feature of the present invention as recited in independent claim 11, wherein a first storage unit system is connected to a computer, a second storage unit system is provided and a third storage unit system is connected to the first and second storage unit systems and a journal writing step is provided of causing the first storage unit system to write a journal having the write data and address information included in the write request to the third storage unit system; and

a fourth feature of the present invention as recited in independent claim 11, wherein a first control information issuing step is provided of causing the first storage unit system to issue first control information including a storage position of the journal necessary for the second storage unit system to read the journal and a first control unit information acquiring step is provided of causing the second storage unit system to acquire the first control information.

To the extent applicable to the present invention, Applicants submit that although the distinguishing feature(s) may represent a substantial portion of the claimed invention, the claimed invention including said feature(s) and their inter-operation provides a novel storage system and system and method related to or implemented in or by said storage system not taught or suggested by any of the references of record.

**b. Differences Between Claimed Features and References**

The references considered most closely related to the claimed invention are briefly discussed below:

Milillo (U.S. Patent No. 6,457,109) shows a method of copying data from a first storage system to a second storage system via an intermediate storage device. When the primary storage receives a write command, data is transferred to the intermediate volume using an internal snapshot, after which the data is transferred from the intermediate storage device to the second storage device. (See, e.g., Abstract, Figure 3, and Column 5, line 57 Column 6, line 9).

However, unlike the present invention, Milillo does not teach or suggest any address information and does not include controllers in each of the storage devices as recited in the claims. More particularly, Milillo does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit to the third storage unit system a journal including write data and an address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or

suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Milillo does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Parks (U.S. 6,598,174) shows a method of migrating data from a first storage device to a second storage device via an intermediate device. The transferring of data includes the setting of a parameter indicating the size and location of the data set stored in the first storage device, generating a request to copy the data from the first storage device to a buffer in the intermediate device, and generating a request to transfer the data from the buffer in the intermediate device to the secondary storage. (See, e.g., Abstract, Figures, and Column 17, line 58 - Column 18, line 50).

However, unlike the present invention, Parks shows a host computer connected to the intermediate device and not to the primary storage unit. Also, no controllers are present in either of the storage devices as recited in the claims. More particularly, Parks does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit

to the third storage unit system a journal including write data and an address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Parks does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Oliveira (U.S. 6,766,359) shows a data transfer system between a first computer and a second computer via a shared data storage wherein the data storage includes an index directory that provides indication of what data is stored in its cache and the address of that data in the cache memory. (See, e.g., Abstract, Figures, and Column 6, lines 14-29).

However, unlike the present invention, Oliveira does not teach the use of separate controllers, and of the journal data including both the data and the address information as recited in the claims. More particularly, Oliveira does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit to the third storage unit system a journal

including write data and an address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Oliveira does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Dysert (U.S. 6,804,690) shows a method for physical backup from a host system to a backup system based on mapping information that includes the storage locations of the data in the storage system. The host is connected to a local storage system including two mirrored disk volumes that are in turn connected to the backup system. (See, e.g., Abstract, Figures 1-3, Column 4, lines 35-57, and Column 7, line 4 - Column 8, line 23).

However, unlike the present invention, Dysert does not show the storage devices including controllers as recited in the claims. More particularly, Dysert does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit to the third storage unit



system a journal including write data and an address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Dysert does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Watanabe (U.S. Patent Application Publication 2002-0144070) shows a copying method between a first storage disk and a second storage disk via an intermediate logical disk. The copy instructions include mentioning of the copy data regions. (See, e.g., Abstract and Figures 1 and 2).

However, unlike the present invention, the storage devices disclosed by Watanabe do not have separate controllers, and the address information is not sent from the first storage device to the second storage device as recited in the claims. More particularly, Watanabe does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit to the third storage unit system a journal including write data and an

address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Watanabe does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Nakano (U.S. Patent Application Publication No. 2003-0051111) discloses a remote copy control method including three data centers connected to each other, each of the data centers including controllers. The first two data centers are located in the vicinity of each other and use synchronous data transfers, while the third data center is located remotely and uses asynchronous data transfer. The data to be updated is received from a host connected to the first data center. The position information of the data to be transmitted is stored in the first data center, so that it can be used by the third data center. When the controller of the first data center has completed the transfer of the data to the second data center, it sends a response to the third data center, including address information, based on which the third data center receives and stores the data. (See, e.g., Abstract, Figures 1, 3, 8, 9, and Paragraphs [158-167]).

Thus, Nakano does not teach or suggest the features of the present invention as recited in the claims, in which a journal including address information is sent to the third storage unit from the first storage unit or to write such a journal in the third storage unit system as in the present invention. Further, Nakano does not teach or suggest that the controller in the second storage unit receives a storage position of the journal or acquire control information including and indication of as in the present invention.

Therefore, Nakano does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Day (U.S. Patent Application Publication No. 2004/0034808) shows a mirror copy system including a primary storage with a primary controller, a secondary storage with a secondary controller, and an intermediate system connected to the primary and secondary storage units. The first storage unit receives a write request from a connected host, writes the data to the primary storage, and synchronously transfers the data to the intermediate system. The intermediate storage manager buffers the data and indicates the track in the primary storage subject to the update. Upon completion, the primary controller returns a response to the host. In response to an update from the intermediate system, the secondary storage manager asynchronously transfers the data to the secondary storage, and returns an

acknowledgment to the intermediate site. (See, e.g., Abstract, Figures 1 and 2, and Paragraphs [22-24]).

However, unlike the present invention, Day does not include a controller in the intermediate site and does not teach the concept of the journal being sent from the intermediate storage to the secondary storage including storage position as recited in the claims. More particularly, Day does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit to the third storage unit system a journal including write data and an address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Day does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Takeda (U.S. Patent Application Publication No. 2004/0172509) shows a data replicating system between a first storage system and a second storage system wherein journal processing is included in the method. The journal processing

includes copying of the data as well as storing an address to the corresponding data. (See, e.g., Abstract, Figures, and Paragraphs [35 and 59]).

However, unlike the present invention, in Takeda no intermediate storage is provided to transfer the data and address information between the first and second storage systems as recited in the claims. More particularly, Takeda does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit to the third storage unit system a journal including write data and an address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Takeda does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Gagne (U.S. Patent Application Publication No. 2004/0193660) discloses a method of cascading data through a data storage facility including a local storage device, a first remote storage device, and a second remote storage device. (See,

e.g., Abstract, Figures, and Paragraphs [25-32]).

Unlike the present invention, Gagne does not include a controller in the local storage and the second storage device, nor do they use address information in the transferring of data as recited in the claims. More particularly, Gagne does not teach or suggest the interconnection of the first, second and third storage unit systems, nor the functions of the first controller of the first storage unit system when responding to a write request from a computer to transmit to the third storage unit system a journal including write data and an address of the write data or to write such a journal in the third storage unit system as in the present invention. Further, there is no teaching or suggestion in the references of the functions of the second controller of the second storage unit system that receives or acquires when responding to control information from the first controller that includes a storage position of the journal in the present invention.

Therefore, Gagne does not teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Therefore, since the above described references and the other references of record fail to teach or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 1, the above described third

feature of the present invention as recited in independent claim 11 and the above described fourth feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims, it is submitted that all of the claims are patentable over the cited references whether said references are taken individually or in combination with each other.

## **(6) CONCLUSION**

Applicant has conducted what it believes to be a reasonable search, but makes no representation that "better" or more relevant prior art does not exist. The United States Patent and Trademark Office is urged to conduct its own complete search of the prior art, and to thoroughly examine this application in view of the prior art cited herein and any other prior art that the United States Patent and Trademark Office may locate in its own independent search. Further, while Applicant has identified in good faith certain portions of each of the references listed herein in order to provide the requisite detailed discussion of how the claimed subject matter is patentable over the references, the United States Patent and Trademark Office should not limit its review to the identified portions but rather, is urged to review and consider the entirety of each reference, and not to rely solely on the identified portions when examining this application.

In view of the foregoing, Applicant requests that this Petition to Make Special be granted and that the application undergo the accelerated examination procedure set forth in MPEP 708.02 VIII.

(7) Fee (37 C.F.R. 1.17(i))

The fee required by 37 C.F.R. § 1.17(i) is to be paid by:

[ X ] the Credit Card Payment Form (attached) for \$130.00.

[ ] charging Account \_\_\_\_\_ the sum of \$130.00.

A duplicate of this petition is attached.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (500.43155X00).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.



Carl I. Brundidge  
Registration No. 29,621

CIB/jdc  
Enclosures  
(703) 684-1120

The PTO did not receive the following  
listed item(s) Credit card for \$130.00